Daily Diary Report by Bid Item

Contract No.: 04-0120F4
Diary #: 1219 **Const Calendar Day:** 792 **Date:** 05-Aug-2014 **Tuesday**
Inspector Name: Brignano, Bob **Title:** Transportation Engineer
Inspection Type:
Shift Hours: **Break:** **Over Time:**
Federal ID:
Location:
Reviewer: Schmitt, Alex **Approved Date:** **Status:** Submit

04-0120F4
04-SF-80-13.2/13.9
Self-Anchored
Suspension Bridge

Weather

Temperature **7 AM** **12 PM** **4PM**
Precipitation **Condition** overcast am, partly cloudy pm

Working Day ☑ If no, explain:

Diary: Dispute ☐

General Comments

CCO 314, SAMPLING AND TESTING A354 GRADE BD MATERIAL:

Weather note: There are some light rain showers today in the Bay Area, including in parts of Oakland, but no rain drops fall at the test rig site at Pier 7.

ABF Engineer Kelvin Chen is working part time in the field and office on CCO 314.

There is work in the field on setup of TR's 18 & 19 and today is the first tensioning step at these test rigs. Crews at the Pier 7 warehouse are working an 8-hour shift 0600 through 1430. Working on the CCO operation all day today are Laborer Carlos (Pedro) Garcia, Ironworker Jared Garrett, and Ironworker John Rocha. Operator John Sabatino works briefly (~1230~1300) on the CCO 314 operations. The non-CCO 314 operations elsewhere at the Pier 7 warehouse area at other times in the day are not covered by this diary.

In the morning, the ironworkers and the laborer work to complete the last tarp on the tents at TR's 18 & 19. At the end of the day yesterday, all the tarps were in place except the top cover at TR 19. This last tarp is in place by 0630. Then, the ironworkers attach the hydraulic hoses from the jacks to the manifolds with the dial gauges. The ironworkers' work on the hydraulic hoses and manifolds is complete by about 0645. After the work on the tarp, the laborer works on the wire run for the CT-METS AE system power cord and network cable – he ties two pieces of the timber protection together so that there is not a joint between these 2 segments that could pinch a wire. The laborer's work on the timber protection is complete by about 0700. The ironworkers are doing miscellaneous cleanup around the test rigs, including moving extra pallets and materials. The laborer completes anchoring of the tents to the concrete slab by rotohammering more holes and installing the last of the wedge expansion anchors. The laborer's work on the tent anchoring is complete by about 0745. The laborer does miscellaneous cleanup, including replacing broken/deteriorating sandbags at the feet of the fence between the test rig area and the parking lot to the east.

VGO continues work on site today. From VGO, Rob Rutledge and Pamela Wallace start work on site at 0700, because of the need to get the jack/gauge exercising, zeroing, snug tightening, and tensioning steps complete by mid-morning. VGO's first work is to attach the pressure transducers to the manifolds at the ends of the hydraulic hoses from the jacks. Then, VGO is present for live data display during the exercising steps, for the VGO zeroing procedures, for the snug tensioning of the test rigs, and for the first jacking step at both test rigs. Then, VGO works on the data reports from the exercising/zero/snug operation and from the first jacking step at both test rigs. VGO leaves the site approximately 1100, but continues to work on data issues in the afternoon from offsite, including producing the evening data

reports. Dave Van Dyke flies to the Bay Area this afternoon, and Rob Rutledge is scheduled to fly out of the Bay Area sometime tomorrow.

At the time of today's exercising and first load step, we thought the instrumentation was fine. However, later today when looking at the data and plots from those first two operations, we saw that a strain gauge (18N_2) had data drift, with the drift in the calculated horizontal bending being more obvious. This strain gauge is at a side location that is not accessible without rotating the rod, which would require ending the test to detension the rod and rotate it for access. The evening report for today does not include this suspect strain gauge or the affected calculated bending channels because of this issue. This is for 1 of 4 primary strain gauges with all 4 secondary strain gauges not having an issue on this rod. Note that the strain gauge issue reported yesterday was from the other test rig, on TR 19.

For the jack/gauge exercising, zeroing, snug tightening, and tensioning steps at the 2 test rigs, present from the DJV is Bardan Gurung and present from CT-METS for AE is Elijah Turner (communicate with Mistras personnel offsite) for AE monitoring only for the jacking step (not for the exercising, zeroing, snug tightening) – they are here for the tensioning steps but are also present for the earlier operations. Two ABF ironworkers are present to operate the hydraulic pump and tighten the nut, with VGO present to monitor the loads being used to guide the operations.

The first jack/gauge exercising, zeroing, and snug tightening is at TR 18 (Dry 2008 Rod, ID S1-A7, Bottom). This work starts at 0728. At 700 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 101 kips. The hydraulic pressure per the dial gauge is increased to 1,400 psi with the primary strain gauges giving a force of 183 kips. The hydraulic pressure per the dial gauge is increased to 1,500 psi with the primary strain gauges giving a force of 197 kips. This is the first of three exercising steps to approximately 200 kips. The hydraulic fluid is then bled to approximately zero pressure, but a few kips do remain in the rod. The hydraulic pressure per the dial gauge is increased to 1,500 psi with the primary strain gauges giving a force of 196 kips. This is the second of three exercising steps to ~200 kips. The hydraulic fluid is then bled to approximately zero pressure, but a few kips do remain in the rod. The hydraulic pressure per the dial gauge is increased to 1,500 psi with the primary strain gauges giving a force of 199 kips. This is the third of three exercising steps to ~200 kips. The hydraulic fluid is then bled to approximately zero pressure, but a few kips do remain in the rod. Then, the zeroing procedures start. Both the jacking rod nut against the test rig end plate and the jacking rod nut against the jacking beam are backed off so that there is no tension locked in the jacking rod as part of the zeroing procedure for VGO's strain gauges. Then, VGO performs the zeroing procedure for the strain gauges with the computer. Then, the jacking rod nut against end plate is hand tightened by an ironworker. Then, VGO performs the zeroing procedure for the displacement transducers with the computer. Then the other jacking rod nut against the jacking beam is hand tightened, so the next jacking step will not waste jack stroke – note that there is still plenty of jack stroke in this equipment. Then, the rod is tensioned to a snug tight load (aim ~ 0.10 Fu). The hydraulic pressure per the dial gauge is increased to 600 psi and the primary strain gauges give a force of 88 kips. There is no waiting before tightening the nut because an AE check is not required, so there is no opportunity for bleed loss. The nut is tightened (using a plate wrench, but without much force applied). The hydraulic fluid is then bled to zero. The load per the primary strain gauges after the seating of the nut is 74 kips (14 kip seating loss) for a load of 0.09 Fu.

The second jack/gauge exercising, zeroing, and snug tightening is at TR 19 (Dry 2008 Rod, ID S2-H6, Bottom). This work starts at 0750. At 700 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 40 kips. This does not appear to be correct (force is half of what it should be for this hydraulic pressure), so the hydraulic fluid is bleed to zero and all the hydraulic hose connections are checked – the problem is not narrowed down to a specific hydraulic connection, with all the hydraulic connections are loosened, broken free, reconnected, and tightened. Then the hydraulic pressure per the dial gauge is increased to 700 psi with the primary strain gauges giving a force of 82 kips. This is as anticipated, so the act of redoing all the hydraulic connections appeared to solve the problem. The hydraulic pressure per the dial gauge is increased to 1,500 psi with the primary strain gauges giving a force of 174 kips. The hydraulic pressure per the dial gauge is increased to 1,700 psi with the primary strain gauges giving a force of 211 kips. This is the first of three exercising steps to approximately 200

kips. The hydraulic fluid is then bled to approximately zero pressure, but it is noted that the strain gauges actually show a negative 15 to 20 kips, and it is also noted that the original zero before the zeroing procedures to be performed later in this operation was arbitrary and not necessarily zero. The hydraulic pressure per the dial gauge is increased to 1,600 psi with the primary strain gauges giving a force of 185 kips. This is the second of three exercising steps to ~200 kips. The hydraulic fluid is then bled to approximately zero pressure, but it is noted that the strain gauges actually show a negative 15 to 20 kips. The hydraulic pressure per the dial gauge is increased to 1,600 psi with the primary strain gauges giving a force of 189 kips. This is the third of three exercising steps to ~200 kips. The hydraulic fluid is then bled to approximately zero pressure, but it is noted that the strain gauges actually show a negative 15 to 20 kips. Then, the zeroing procedures start. Both the jacking rod nut against the test rig end plate and the jacking rod nut against the jacking beam are backed off so that there is no tension locked in the jacking rod as part of the zeroing procedure for VGO's strain gauges. Then, VGO performs the zeroing procedure for the strain gauges with the computer. Then, the jacking rod nut against end plate is hand tightened by an ironworker. Then, VGO performs the zeroing procedure for the displacement transducers with the computer. Then the other jacking rod nut against the jacking beam is hand tightened, so the next jacking step will not waste jack stroke – note that there is still plenty of jack stroke in this equipment. Then, the rod is tensioned to a snug tight load (aim ~ 0.10 Fu). The hydraulic pressure per the dial gauge is increased to 600 psi and the primary strain gauges give a force of 75 kips. There is no waiting before tightening the nut because an AE check is not required, so there is no opportunity for bleed loss. The nut is tightened (using a plate wrench, but without much force applied). The hydraulic fluid is then bled to zero. The load per the primary strain gauges after the seating of the nut is 65 kips (10 kip seating loss) for a load of 0.08 Fu.

Test Rig #18 (Dry 2008 Rod, ID S1-A7, Bottom) Jacking Step:
This is the 1st jacking step and the rod is being jacked to 0.30 Fu. The post-seating of the nut target is 250.740 +10/-0 kips. The expected hydraulic pressure at this locked off force is 1,800 psi. Based on the previous jacking step (snug tight 0.10 Fu), the expected seating loss is at least 14 kips, so the initial jacking target is ~270~280 kips. Jacking is started at about 0814. At 1,800 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 238 kips. The hydraulic pressure is increased to 2,100 psi and the primary strain gauges give a force of 280 kips. The AE is checked with the ok given at 0816. The nut is tightened. Prior to bleeding off the jacks, the primary strain gauges give a force of 280 kips (bleed loss = 0 kips). After bleeding off the jacks, the primary strain gauges give a force of 259 kips (seating loss = 21 kips). The force is within the specified tolerance.

Test Rig #19 (Dry 2008 Rod, ID S2-H6, Bottom) Jacking Step:
This is the 1st jacking step and the rod is being jacked to 0.30 Fu. The post-seating of the nut target is 250.740 +10/-0 kips. The expected hydraulic pressure at this locked off force is 1,800 psi. Based on the previous jacking step (snug tight 0.10 Fu), the expected seating loss is at least 10 kips, so the initial jacking target is ~265~275 kips. Jacking is started at about 0819. At 1,800 psi hydraulic pressure per the dial gauge, the primary strain gauges give a force of 232 kips. The hydraulic pressure is increased to 2,000 psi and the primary strain gauges give a force of 269 kips. The AE is checked with the ok given at 0823. The nut is tightened. Prior to bleeding off the jacks, the primary strain gauges give a force of 265 kips (bleed loss = 4 kips). After bleeding off the jacks, the primary strain gauges give a force of 243 kips (seating loss = 22 kips). The tension in the rod after seating the nut is not within tolerance. For the second jacking step the hydraulic pressure is increased to 2,000+ psi and the primary strain gauges give a force of 269 kips. The hydraulic pressure is increased to 2,100 psi and the primary strain gauges give a force of 276 kips. The AE is checked with the ok given at 0826. The nut is tightened. Prior to bleeding off the jacks, the primary strain gauges give a force of 274 kips (bleed loss = 2 kips). After bleeding off the jacks, the primary strain gauges give a force of 252 kips (seating loss = 22 kips). The force is within the specified tolerance.

Prior, during, and after the jacking steps, the laborer is doing miscellaneous cleanup, including replacing broken/deteriorating sandbags at the feet of the fence between the test rig area and the parking lot to the east. After the jacking steps, the ironworkers begin work on wire rope to connect the pairs of k-rail to the north and south of the test rigs (note that some of this was done previously, but most of it still needed to be done). The ironworkers also add the wire rope above the north and south traffic plates, connecting to

the k-rail. The ironworkers also top off the hydraulic fluid in the hydraulic pump (it was low from extending the jacks to catch the lugs on the jacking beam). The ironworkers also continue work moving material around the test rig area – removing extra material no longer needed. Included in this work is moving pallets of sandbags located in various areas to the south of the test rigs all to one spot so they can be contained to address a SWPPP inspection comment. The laborer adds red "Danger Do Not Enter" tape at the ends of the test rigs to block off the areas behind the test rigs for safety. The ironworkers with help from the operator erect the fence at the south ends of the test rigs between ~1230 and ~1330. The fence is to enclose the test rigs for security and primarily for safety to keep people out while the rods are under load. There is also some additional cleanup and moving of materials in the afternoon near the end of the shift.

A 7kW generator – Whisperwatt 7000 – ABF ID 002343 is used briefly by the laborer and is on idle/standby at the test rig work area the remainder of the day. A 40kW generator – MQ Power 40 – ABF ID 002051 is used briefly for the jacking operations and is on idle/standby at the test rig work area the remainder of the day. A Hydraulic Pump for running the jacks is used briefly for the jacking operations and is on idle/standby at the test rig work area the remainder of the day. An oxyacetylene torch is used briefly and is on idle/standby at the test rig work area the remainder of the day. Various forklifts are used at the test rigs at different times – Hyster 80 forklift (ABF ID 002306) and extendable forklift (Gradall 544D - ABF ID 002005). A Kubota Cart is used by the laborer and another Kubota Cart is used at times by the ironworker at the test rig work area. A compressor - IR 185 ABF ID 002039 - is on idle/standby at the test rig work area at the start of the day and is then removed from the test rig area about 0800.

Note that there is k-rail at this work area. All the remaining k-rail at the CCO 314 test rig site is State owned. There are 20 pieces of 10' bought k-rail. Of the 20 pieces, 16 are installed in test rigs and 4 are spare/extra k-rail that are set aside.

To elevate k-rail and sandbags, crane mats (built from 12x12's) and timber blocking (12x12's) are used. The crane mat and 12x12's quantities are as follows:
1 each 4'x20' crane mat (1 x 80 LF)
1 each 5'x19' crane mat (1 x 95 LF)
2 each 5'x20' crane mats (2 x 100 LF)
2 each 5'x16' crane mat (2 x 80 LF)
~64 LF additional 12x12's
Total 12x12's quantity = 599 LF ~ 600 LF

The agreed extra work with ABF is as follows:
Ironworker Jared Garrett - 8 hrs
Ironworker John Rocha - 8 hrs
Laborer Carlos (Pedro) Garcia - 8 hrs
Engineer Kelvin Chen - 1 hr
40 kW Generator - 1 hr
Kubota Cart - 8 hrs
12x12 timber - 600 LF
See the attached Extra Work Order - Signed with ABF for CCO 314 work